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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/066,483	01/31/2002	William Budge	MTI-31079-C	7667
22202	7590	03/26/2004		
WHYTE HIRSCHBOECK DUDEK S C 555 EAST WELLS STREET SUITE 1900 MILWAUKEE, WI 53202			EXAMINER MANDALA, VICTOR A	
			ART UNIT	PAPER NUMBER
			2826	

DATE MAILED: 03/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/066,483

Applicant(s)

BUDGE ET AL.

Examiner

Victor A Mandala Jr.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 24-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 24-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>1/31/02</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### Response to the Amendments

1. The Applicant has amended partially around the 35 U.S.C. 112 rejections on claims 24, 25, 27, 29, and 30. Further rejections are seen below.
3. The Applicant argues claims 24 and 26-31 that were rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,121,086 Kuroda et al. does not teach the first nonconductive silicon oxide layer to be thicker than the second nonconductive silicon oxide layer. The examiner has considered the Applicant's arguments but finds them to be non-persuasive because claim 24 does not teach the direction which the thickness should be interpreted in the claims. The examiner is interpreting the claims as broad as written, thus interpreting the thickness in Kuroda et al. to be in the lateral sense. Claims 24 and 26-31 that are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,121,086 Kuroda et al. stand as is.

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 24-29 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure, which is not enabling. Claim 24 teaches a second nonconductive **silicon** layer, which is critical or essential to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976).

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 24-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 24 recites the limitation the second nonconductive **silicon oxide** layer. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 24 and 26-31 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S.

Patent No. 6,121,086 Kuroda et al.

5. Referring to claim 24, a semiconductor memory device comprising: at least one first word line comprising p-type silicon or polysilicon, (Figure 25 #7g2 transistor Qp Col. 13 Line 67 and Col. 14 Line 1), and a first nonconductive silicon oxide layer, (Figure 25 #12a examiner's label #100 and Col. 10 Line 15); at least one second word line comprising n-type silicon or polysilicon, (Figure 25 #7g2 transistor Qn Col. 13 Line 67 and Col. 14 Line 1), and **a second**

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**nonconductive silicon layer**, (Figure 25 #12a examiner's label #200 and Col. 10 Line 15), provided that the second wordline comprises N-type silicon when the first wordline does not comprise P-type silicon; and wherein the first nonconductive silicon oxide layer, (Figure 25 #12a examiner's label #100 and Col. 10 Line 15), is thicker than the second nonconductive silicon oxide layer layer, (Figure 25 #12a examiner's label #200 and Col. 10 Line 15).

9. Referring to claim 26, a semiconductor memory device, wherein at least one of the first word line or the second word line form part of a DRAM array, (Col. 9 Line 16).

10. Referring to claim 27, a semiconductor memory device, wherein the DRAM array is part of a system on chip, (Col. 9 Line 17).

11. Referring to claim 28, a semiconductor memory device, wherein at least one of the first word line or the second word line form part of a SRAM array, (Col. 37 Line 26).

12. Referring to claim 29, a semiconductor memory device, wherein the DRAM array is part of a system on chip, (Col. 9 Line 17).

13. Referring to claim 30, a multi-gate semiconductor device comprising: at least one first p-type gate, (Figure 25 #7g2 transistor Qp Col. 13 Line 67 and Col. 14 Line 1), surrounded by a first nonconductive silicon oxide layer; and at least one second n-type silicon gate, (Figure 25 #7g2 transistor Qn Col. 13 Line 67 and Col. 14 Line 1), surrounded by a second nonconductive silicon oxide layer, (Figure 25 #12a examiner's label #200 and Col. 10 Line 15); wherein the first nonconductive layer is thicker than the second nonconductive layer.

14. Referring to claim 31, a multi-gate semiconductor device, wherein the device is part of a logic circuit, (Col. 37 Line 15).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,121,086 Kuroda et al.

15. Referring to claim 25, a semiconductor memory device, wherein the first and the second nonconductive silicon oxide layers are formed using tetrathylorthosilicate/ ozone deposition in one step process.

Initially, and with respect to claim 25, note that a "product by process" claim is directed to the product per se, no matter how actually made, In re Hirao, 190 USPQ 15 at 17 (footnote 3). See also In re Brown, 173 USPQ 685; In re Luck, 177 USPQ 523; In re Wertheim, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); In re Fitzgerald, 205 USPQ 594, 596 (CCPA); In re Marosi et al., 218 USPQ 289 (CAFC); and most recently, In re Thorpe et al., 227 USPQ 964 (CAFC, 1985) all of which make it clear that it is the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that, as here, an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not. Note that Applicant has burden of proof in such cases as the above case law makes clear.

As to the grounds of rejection under section 103, see MPEP § 2113

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Victor A Mandala Jr. whose telephone number is (571) 272-1918. The examiner can normally be reached on Monday through Thursday from 8am till 6pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J Flynn can be reached on (571) 272-1915. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

VAMJ  
3/17/04

NATHAN J. FLYNN  
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